To: Seyfried, Erin[Seyfried.Erin@epa.gov]; Cool, Richard[Cool.Richard@epa.gov]; Latier, Andrea[Latier.Andrea@epa.gov]; Mayers, Timothy[Mayers.Timothy@epa.gov]
From: Shaw, Hanh
Sent: Tue 10/7/2014 3:07:14 PM
Subject: FW: EPA's General Comments on the Draft EMP (Chukchi Sea Exploration GP Requirement)
TechReport_DischargeModeling_Burger_J_SO3_DRAFT.pdf

Below are the comments we sent on the 1st draft of the EMP to Shell prior to the August 29, 2013 meeting. Also, attached is the modeling report.

From: Seyfried, Erin
Sent: Thursday, August 08, 2013 12:37 PM
To: Heather.Ptak@shell.com
Cc: Lana.Davis@shell.com; Shaw, Hanh
Subject: EPA's General Comments on the Draft EMP (Chukchi Sea Exploration GP Requirement)

Heather,

This message summarizes the key points of our meeting on July 30, 2013. The purpose of the meeting was to discuss the draft Environmental Monitoring Program (EMP) study plan, submitted by Shell, for six lease blocks located within the Burger prospect of the Chukchi Sea. During the meeting, EPA shared the following general comments:

1. Phase I. The draft EMP does not adequately justify or demonstrate that baseline site characterization data for all six lease block locations meet the Phase I data collection requirements. The Chukchi Exploration NPDES General Permit (AKG288100, Chukchi GP) Part II.A.13.f. requires submission of data for four elements of Phase I. While studies have occurred in the Chukchi Sea through multidisciplinary research programs, the draft study plan does not provide an adequate synopsis of these programs for each of the four elements. By synthesizing the past studies referenced in the draft study plan (and Appendix A – Phase I Justification) it should be possible to clearly summarize the extent of historical sampling programs (e.g. number and location of sample sites) for each drill site representing the "before drilling" conditions, the types of data collected,

and the results relative to this specific area. Otherwise there is not a definitive demonstration of existing conditions. This data would help satisfy requirements to assess temporal variations, whereas using regionalized assumptions would only satisfy requirements to assess spatial variability. The historical data sets, as currently presented, do not appear to fully meet this EMP requirement.

Furthermore, EPA notes that while some site-specific baseline data has been collected at the Burger A drillsite, the other Burger lease locations do not contain the same level of information, and the homogeneous nature of the existing environment across the entire Burger prospect for each of the four Phase I elements has not been demonstrated.

2. Revised List of Metals for Receiving Water Assessment. The justification to remove six metals from Table A of the Chukchi GP for dissolved water analysis appears insufficient. The reasons Shell presented included low water solubility for each of these six metals, presence at or below background sediment concentrations in drilling fluids and cuttings, and the extremely low detection levels, which could result in analytical challenges. These reasons do not seem compelling, especially in light of EPA's clarification at the meeting that the standard analytical methodology should be used and the results reported as non-detects if they are present below detection levels. The difference in water solubility for these six metals in comparison to the other metals was not presented to substantiate this reason for removal, nor was a comparison between drilling fluids and cuttings and background concentrations. The Chukchi GP provides an opportunity for the permittee to propose an alternative list for metals monitoring "based on site specific data" (Permit Part II.A.13.f.3.). The draft EMP study plan, as well as the Phase I Justification Document, does not provide site specific data to support modifying the metals list. EPA recognizes that Shell's advisors recommend removal of these 6 metals; however we will need further justification (presented above) as a basis for our decision.

3. Discharge Model. As the dilution model was not submitted along with the draft EMP study plan, it was difficult for EPA to determine the validity of proposed sampling program (i.e., sample locations and number of samples) and rationale for Phases II, III, and IV. The draft modeling report was emailed to EPA on 8/1/2013.

4. Rapid Toxicity Testing. Various rapid screening tools and the whole effluent toxicity testing approach were discussed. Since the meeting, EPA has confirmed

with internal experts that Shell's proposal to use the Echinoderm Fertilization water assay is a sound approach.

5. Marine Mammal Deflection Monitoring. EPA requested a more detailed description of how Shell intends to meet the Chukchi GP Parts II.A.13.g.2. and II.A.13.j.4. in light of its existing protected species observers program. As currently written, it is not clear to EPA how observations would be correlated with periods of discharge.

6. Sediment Characterization. The rationale for Phase III and IV sediment sampling locations does not appear consistent with the general descriptions of anticipated solids deposition and dispersion based on modeled scenarios. The spacing and radial distribution of samples do not seem to meet the Chukchi GP requirements at Part II.A.13.j.2. for a statistically significant spatial and temporal sediment accumulations and effect of Discharge 001. It appears that near-field sample sites are under-represented, while far-field and "reference" sites are over-represented in the sampling design. What is the justification for not including sampling stations less than 100 meters from the discharge site? Modeling suggests that a majority of the plume deposition will occur within 250m of the discharge site (along the predominant current), yet, approximately 12-14 of the proposed sample points are not located within or proximal to this deposition zone.

Please consider modifying the proposed sampling program to focus the majority of the samples along (and near) the predominant current (similar to the proposed Phase II water column sampling – EMP page 27), or provide a detailed description behind the logic of this draft sampling design.

7. Benthic Community Bioaccumulation Study. The proposed approach, number of samples, and targeted species do not meet the intent of the Chukchi GP at Part II.A.13.j.3, nor are the existing data presented in a way that provides support for statements regarding environmental conditions. Both the EMP study plan and the Appendix A Phase I Justification state that there is abundant data available to describe in situ conditions, yet no meaningful summary or synthesis of this data is provided to clearly describe environmental conditions relevant to the proposed study plan. The EMP study plan provides no graphical representations of biomass variation among sample sites, or variation in species abundance among sites. The correlations provided, using a single parameter (mud), are not adequate.

Additionally, Part II.A.13.j.3 of the Chukchi GP states that the "bioaccumulation study should assess effects in the benthic and epibenthic invertebrates. The EMP should target appropriate species within each group that constitute a significant portion of the diet of higher trophic level species." The draft EMP study plan does not discuss the epibenthic species to be sampled, or the sampling process. The discussion provided for sampling of clams is insufficient and needs additional clarification. For example, are the clams analyzed as composite samples? Are these composite samples of individuals collected at a site or do individuals constitute a sample? During the meeting EPA and Shell discussed the collection of amphipods to represent the epibenthic species. Specifics relative to sampling for amphipods will also need to be included in the revised EMP. Additionally, a discussion of where amphipods fall within the Arctic food web should be included so that a determination of their contribution to the diet of higher trophic level species is clear.

EPA looks forward to receiving the revised EMP study plan and a second meeting in Anchorage on August 29. We request a revised study plan for review at least one week prior to the meeting date. Also, EPA will be prepared to share our thoughts and feedback regarding the draft modeling report and Quality Assurance Project Plan at that time.

Sincerely,

Erin

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